REMARKS

Claims 1 – 12 and 25 - 33 are pending in the application. Claims 2 - 4, 12 – 24, and 26 – 33 have been canceled. Claims 1, 25 and 34 have been amended. New claims 35 - 37 have been added. No new matter has been added by virtue of the amendments, support being found throughout the specification and the claims as originally filed.

Any cancellation of the claims should in no way be construed as acquiescence to any of the Examiner's rejections and was done solely to expedite the prosecution of the application. Applicant reserves the right to pursue the claims as originally filed in this or a separate application(s).

Applicants thank Examiner Johannsen for her time and helpful discussion during the telephone interview conducted on November 13, 2008.

Claim Rejections

35 U.S.C. §112, second paragraph

The Examiner has rejected claims 1 – 12 and 25 – 31 under 35 USC §112, second paragraph, as being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicants respectfully traverse the rejection.

Applicants have cancelled claim 12.

Applicants have amended claim 25 and cancelled claims 26 – 31.

Accordingly, Applicants respectfully request that the rejection be withdrawn.

Claim Objections

The Examiner has objected to claims 12 and 25 – 31 under 37 CFR 1.75(c) as being in improper dependent form for failing to further limit the subject matter of a previous claim. Applicants respectfully disagree.

Applicants have cancelled claim 12 and claims 26 – 31. Applicants have amended claim 25. The claims no longer fail to further limit the subject matter of a previous claim. Accordingly, Applicants respectfully request that the objection be withdrawn.

35 U.S.C. §102(b)

Claims 1 – 12 and 34 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Reeve et al. (WO 99/47706 A1 [22 Sept 1999]). The Examiner argues that "Reeve et al. teach all possible PNA 10mers as well as subsets thereof, present either in solution or on an array...and therefore Reeve et al. disclose multiple PNA probes meeting both the structural/ length requirements and functional requirements (i.e. being complementary to the recited target 23s sequences or sequences complementary thereto) set forth in independent claims 1 and 34." (Office Action, p.4). Applicants respectfully traverse the rejection.

Instant claim 1 recites a PNA probe comprising a nucleobase sequence for the detection, identification or quantitation of Pseudomonas, wherein said PNA probe comprises a sequence of 15 – 17 nucleobase subunits in length, wherein at least a portion of the probe is at least 90% identical to the nucleobase sequence or complement thereof comprising CCT ACC ACC TTA AAC (SEQ ID NO: 1),and wherein said PNA probe is complementary to a target sequence of 23S rRNA or rDNA of Pseudomonas aeruginosa, Pseudomonas alcaligenes, Pseudomonas chlororaphis, Pseudomonas fluorescens, Pseudomonas fragi, Pseudomonas huttiensis, Pseudomonas luteola, Pseudomonas mendocina, Pseudomonas mucidolens, Pseudomonas nitroreducens, Pseudomonas pseudoalcaligenes,

Pseudomonas putida, Pseudomonas stutzeri, or Pseudomonas veronii, or sequences complementary to these target sequences.

The teachings of the Reeve reference do not anticipate the claimed invention. Specifically, the Reeve reference does not teach or suggest use of a PNA probe comprising a nucleobase sequence for the detection, identification or quantitation of Pseudomonas, wherein said PNA probe comprises a sequence of 15 – 17 nucleobase subunits in length, and wherein said PNA probe is complementary to a target sequence of 23S rRNA or rDNA of any Psudomonas.

The Reeve reference is directed to methods of sequencing by hybridization using labeled oligonucleotides in solution and an array of immobilized target oligonucleotides.

Nowhere does the Reeve reference teach or suggest a PNA probe comprising a sequence of **15 – 17 nucleobase subunits in length, and wherein said PNA probe is complementary to a Psuedomonas 23S rRNA or rDNA target sequence**. Applicants direct the Examiner to page 3 of Reeve where it is taught that "the **target nucleic acids** may be DNA, RNA, PNA, other nucleic acid mimetics, or mixtures thereof." (emphasis added). Nowhere does Reeve teach rRNA or rDNA or even further 23s rRNA or rDNA as target sequence.

Nowhere does the Reeve reference teach or suggest use of a PNA probe comprising a nucleobase sequence for the detection, identification or quantitation of any member of the genus Pseudomonas.

Accordingly, the Reeve reference does not anticipate the invention as claimed. Applicants respectfully request withdrawal of the rejection and allowance of the claims.

35 U.S.C. §103(a)

Claims 25 – 31 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Reeve et al (as above) in view of Ahern et al. (The Scientist 9(15):20 [July 1995]) . Applicants respectfully traverse the rejection.

Claims 25 recites a kit comprising a PNA probe comprising a nucleobase sequence for the detection, identification or quantitation of Pseudomonas, wherein said PNA probe comprises a sequence of 15 – 17 nucleobase subunits in length, wherein at least a portion of the probe is at least 90% identical to the nucleobase sequence or complement thereof comprising CCT ACC ACC TTA AAC (SEQ ID NO: 1), and wherein said PNA probe is complementary to a target sequence of 23S rRNA or rDNA of Pseudomonas aeruginosa, Pseudomonas alcaligenes, Pseudomonas chlororaphis, Pseudomonas fluorescens, Pseudomonas fragi, Pseudomonas huttiensis, Pseudomonas luteola, Pseudomonas mendocina, Pseudomonas mucidolens, Pseudomonas nitroreducens, Pseudomonas pseudoalcaligenes, Pseudomonas putida, Pseudomonas stutzeri, or Pseudomonas veronii, or sequences complementary to these target sequences, and instructions for use. Claims 26 – 31 depend from claim 25.

As set forth above, the Reeve reference does not teach or suggest use of a PNA probe comprising a nucleobase sequence for the detection, identification or quantitation of Pseudomonas, wherein said PNA probe comprises a sequence of 15 – 17 nucleobase subunits in length, and wherein said PNA probe is complementary to a target sequence of 23S rRNA or rDNA of any Psudomonads.

The Reeve reference is directed to methods of sequencing by hybridization using labeled oligonucleotides in solution and an array of immobilized target oligonucleotides. Nowhere does Reeve reference teach or suggest a PNA probe comprising a sequence of **15 – 17 nucleobase subunits in length, and wherein said PNA probe is complementary to a Psuedomonas 23S rRNA or rDNA target sequence.**

The teachings of Ahearn do not make up for the deficiencies of the Reeve reference. The combination of Reeve and Ahearn does not teach or suggest the invention as instantly claimed.

Applicants respectfully request that the foregoing rejection be withdrawn.

Claims 1 – 2, 4 – 7, 9 – 12 and 34 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ludwig et al (Applied Environmental Microbiology 60(9):3236 – 3244) in view of Hyldig-Nielsen et al (US 6,169,169 B1).

Claims 7 - 8 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ludwig et al (as above) in view of Hyldig-Nielsen et al (as above), as applied to claims 1 – 2, 4 – 7, 9 – 12 and 34, above, and further in view of Gildea et al. (6,485,901).

For the sake of brevity, the two rejections under 103(a) are addressed together because each rejection relies on the Ludwig et al. reference in combination with at least one secondary reference.

Applicants respectfully traverse these two rejections.

Claim 1 has been set forth above, and recites a PNA probe comprising a nucleobase sequence for the detection, identification or quantitation of Pseudomonas, wherein at least a portion of the probe is at least 90% identical to the nucleobase sequence or complement thereof comprising CCT ACC ACC TTA AAC (SEQ ID NO: 1). Claim 7 depends from claim 1, and indicates that the probe is self-reporting.

The Examiner argues that Ludwig "disclose 23s rRNA partial sequences for a variety of Pseudomonas species, each of which includes an RNA sequence corresponding to the reverse complement of SEQ ID NO: 1 (and) thus Ludwig inherently disclose that instant SEQ ID NO: 1 exactly complements the 23s rRNA sequence of a variety of (P)seudomonads." (Office Action, p.8). Applicants disagree.

The Ludwig reference fails to teach or suggest all the elements of the instant invention. In particular, the Ludwig reference does not teach or suggest **a single nucleobase sequence** as **a suitable target for a genus specific probe** for the detection, identification or quantitation of Pseudomonas. Ludwig does not teach or suggest a PNA probe comprising a nucleobase sequence for the detection, identification or quantitation of Pseudomonas, where the PNA probe is

complementary to a target sequence of 23S rRNA or rDNA of the species of the genus of Pseudomonas as instantly claimed.

The Ludwig reference describes "polynucleotide sites on bacterial 23s rRNAs (that) have been tested for their general applicability for group-specific probes." (p.3237). The Examiner points out Figure 2, which is an "alignment of the 23s rRNA partial sequences." (p.3239). The Examiner argues that "Figure 2...reveals that there are sequence differences between all pseudomonads and a variety of other bacterial species at the region corresponding to instant SEQ ID NO: 1." (Office Action, p.8). The Examiner argues that "(t)hus, the teachings of Ludwig et al. suggest that the region of 23s rRNA corresponding to instant SEQ ID NO: 1 is a suitable target for a genus-specific probe for psuedomonads." (Office Action, p.8). Applicants disagree.

Applicants have identified a **genus specific probe** that is at least 90% identical to the nucleobase sequence or complement comprising the sequence CCT ACC ACC TTA AAC (SEQ ID NO: 1) to identify only members of the Psudomonas genus. The region of 23s rRNA corresponding to SEQ ID NO: 1, when compared to other target regions contemplated for PNA probes for Pseudomonas, shows greater specificity.

The Ludwig reference nowhere teaches or suggests **one specific region** of 23s rRNA that is suitable for the detection, identification or quantitation of Pseudomonas. Figure 2, as pointed out by the Examiner, is merely an alignment 23s rRNA partial sequences that are over 200 nucleotides long. Without any guidance or suggestion provided by Ludwig, there is not **one specific probe that detects one specific region**, as taught by the instant invention, of the 23s rRNAs that may be a suitable target for a genus-specific probe for Psuedomonads.

The art teaches that **no one probe to one specific region of 23s rRNA** is known or suggested that can suitably detect, identify or quantitate the genus of Pseudomonas. In the Hyldig-Nielsen reference (US Patent No. 6,664,045), a set of **three probes** was required to detect a Pseudomonas genus. Table 1 (col 10) of the

'045 reference shows that SEQ ID NOs: 7, 8 and 9 were needed in combination to detect the Psudomonas genus (shown in Figure 2-I). The '045 reference teaches that "the specificity of the probes must be functionally examined since **sequence alignment analysis does not always produce a target specific probe.**" (col 10, line 17, emphasis added).

Moreover, it is not enough that Ludwig simply teaches the sequence of the species of interest. The Ludwig reference only includes sequence information for 4 non-Pseudomonas species; without sequence information on other closely related species such as Ralstonia, Stenotrophomonas, Sphingomonas, Brevundimonas, Comamonas (as tested in the instant application) lack of cross-reactions to these species and probe specificity cannot be determined. Accordingly, the Ludwig reference has provided no teaching or suggestion to distinguish any one region of the 23s rRNA sequence from another as being preferred for use as a genus specific probe.

The Hyldig-Nielsen reference (US 6,169,169 B1) does not cure the defects of the Ludwig reference. Nowhere in the Hyldig-Nielsen reference is there teaching or suggestion of a nucleobase sequence as presently claimed as a suitable target for a genus specific probe for the detection, identification or quantitation of Pseudomonas. Nowhere does the Hyldig-Nielsen reference teach a PNA probe comprising a nucleobase sequence for the detection, identification or quantitation of Pseudomonas, wherein said PNA probe comprises a sequence of 10 – 17 nucleobase subunits in length, wherein at least a portion of the probe is at least 90% identical to the nucleobase sequence or complement thereof comprising CCT ACC ACC TTA AAC (Seq. Id. No. 1), and wherein said PNA probe is complementary to a target sequence of 23S rRNA or rDNA of a species of a genus of Pseudomonas as claimed. Therefore, the teachings of the cited art, when combined, do not result in the claimed invention.

Accordingly, Applicants request that the foregoing rejections be withdrawn.

Claims 25 – 31 have been rejected under 35 USC §103(a) as being unpatentable over Ludwig et al (as above) in view of Hyldig-Nielsen et al (as above), as applied to claims 1 – 2, 4 – 7, 9 – 12 and 34, above, and further in view of Ahern (as above).

Claims 25 - 31 have been cancelled, thereby rendering the rejection under 103(a) moot. Accordingly, Applicants respectfully request that the rejection be withdrawn.

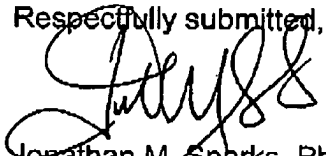
CONCLUSIONS

For the reasons provided, Applicant submits that all claims are allowable as written and respectfully requests early favorable action by the Examiner. If the Examiner believes that a telephone conversation with Applicant's attorney/agent would expedite prosecution of this application, the Examiner is cordially invited to call the undersigned attorney of record.

The Director is hereby authorized to charge any credits or deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to Deposit Account No. 04-1105.

Dated: February 5, 2009

Respectfully submitted,



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